

REMARKS

Claims 1-20 are all of the claims presently pending in the application and claims 2, 6, 8, 9 and 11 are withdrawn from consideration. Applicant has amended claims 1 and 5 to more particularly define the claimed invention.

Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 3-5, 7, 10 and 12-20 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yamamura et al., (U.S. Patent No. 6,742,363) in view of Lipowski (U.S. Patent No. 4,650,380), Doudet (U.S. Patent No. 4,386,513), Nordloff (U.S. Patent No. 4,594,872) and Japanese Patent Publication No. 57-121810.

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as defined by exemplary claim 1) is directed to a method of elongating optical fiber base material, including heating and softening base material ingot in such as an electric furnace, drawing said ingot with a pair of pinch rollers; and elongating the ingot to make base material rod having a smaller diameter than said ingot, wherein either one of a roller groove having a curvature radius which is greater than the outer diameter of the base material rod and a V-shaped roller groove having the cross section including straight lines is formed on each surface of the pinch rollers made of metal, and wherein the facing roller grooves respectively formed on the surfaces of a pair of the pinch rollers nip and draw the base material rod. Moreover, a position of the pinch rollers and a position of a mounting

part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means such that the straight lines, connecting the central axis of the heating means with a groove center of the roller grooves respectively formed on each surface of the pair of pinch rollers, are parallel to a traveling direction of the base material ingot fed into the heating means.

In the conventional art, during the elongation, the base material rod having a small diameter is nipped by a pair of pinch rollers and drawn. The surfaces of the used pinch rollers were burnt and damaged by contacting with the base material rod having a high temperature of over 400 degree centigrade, which causes the rollers to change size and shape with time. The pinch rollers, therefore, cannot draw the rod at the proper position, which makes the base material rod curved. (Application, paragraph 5).

The claimed invention of exemplary claim 1, on the other hand, provides the method of elongating optical fiber base material without being curved and correcting the curvature, and with high productivity, and the apparatus for elongating the same. (Application, paragraph 9).

In addition, the claimed invention includes where a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means such that the straight lines, connecting the central axis of the heating means with a groove center of the roller grooves respectively formed on each surface of the pair of pinch rollers, are parallel to a traveling direction of the base material ingot fed into the heating means.

II. THE ALLEGED PRIOR ART REFERENCES

The Combination of Cited References including Nordloff (U.S. Patent No.

4,594,872)

The Examiner has alleged that Yamamura et al., (U.S. Patent No. 6,742,363) in view of Lipowski (U.S. Patent No. 4,650,380), Doudet (U.S. Patent No. 4,386,513), Nordloff (U.S. Patent No. 4,594,872) and Japanese Patent Publication No. 57-121810.

The claimed invention (e.g., claim 1) includes *a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means such that the straight lines, connecting the central axis of the heating means with a groove center of the roller grooves respectively formed on each surface of the pair of pinch rollers, are parallel to a traveling direction of the base material ingot fed into the heating means.*

In the claimed invention, both a position of a mounting part of the base material ingot and a position of the pinch rollers are adjusted in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means. The claimed straight lines and a traveling direction of the base material ingot can be aligned because of such a configuration.

However, none of the cited references teaches or suggest the claimed invention. Nordlof also fails to teach or suggest such a limitation.

The Examiner on page 4 of the present Office action admits that "[n]either Yamamura, Doudet, nor Lipwski teaches a positioning the pinch rollers in a straight line" (emphasis added by Applicant). However, the Examiner argues that "Nordlof teaches using a screw (195) to adjust a set of pinch rollers in a straight line (column 7, lines 1-27)."

In the claimed invention, *a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means such that the straight lines,*

connecting the central axis of the heating means with a groove center of the roller grooves respectively formed on each surface of the pair of pinch rollers, are parallel to a traveling direction of the base material ingot fed into the heating means.

For example, such a configuration can prevent the heated and softened part, in which the base material ingot shrinks the diameter to transform into the base material rod, from getting bending moment from the pinch rollers, which can make the elongated base material rod less curved.

On the other hand, none of the cited references teaches or suggests adjusting the position of the pinch roller as claimed as shown below.

For example, the description of Nordlof when considered in view of features, merely teaches that the adjustment of the gap between the upper pinch roller is performed in the lower roller is performed using an adjusting screw, and Nordlof is completely silent about the foregoing features. Therefore, it is impossible to adjust a straight line, connecting a central axis of the heating means with a groove center of the roller grooves of the pinch rollers so as to be parallel to a traveling direction of the base material ingot fed into the heating means, based on the disclosure of Nordlof.

Moreover, Nordlof recites, "[a]n adjusting screw 195 is threaded in the cross head 121d and engages the upper pinch roller to adjust the clearance between the upper and lower pinch rollers. A power input drive gear 201 non-rotatably keyed to an input drive shaft 202 driven by a drive motor (not shown) meshes with an idler gear 203 that is rotatably supported on a stub shaft 205 coaxial with the pivot axis of the upper pinch roller support 188, and idler gear 203 meshes with a gear 204 (FIG. 10) that is non-rotatably keyed to the upper pinch roller shaft 187 to drive the upper pinch roller. The drive gear 201 also drivingly engages the

gear 182 on the lower pinch roller shaft to drive the lower pinch roller at the same peripheral speed as the upper pinch roller." Nordlof, col. 7, lines 13-27, emphasis added by Applicant.

Furthermore, by referring to Figures 8-13, the description in col. 7, lines 13-27 clearly indicates that Nordlof fails to teach or suggest a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means.

The reference of JP 57-121810 also fails to teach or suggest a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means as it includes in its constitution, "A beam is emitted from the part 41, and the center of the detector 51 is aligned to the center 0-0 of the beam and this is used as a reference line for the centers of rolling rolls....In accordance with the results of this detection, the centers of the respective rolling rolls are corrected, thence the jigs are removed, the housings are again installed to the stands and the centers of the rolling rolls of the stands S1-S8 are aligned to the reference line 0-0." Abstract of JP57-121810.

Therefore, clearly JP 57-121810, Yamamura, Doudet, Lipowski and Nordlof, alone or in combination fail to teach or suggest a position of the pinch rollers and a position of a mounting part of the base material ingot are adjusted, respectively in two perpendicular axial directions in a plane perpendicular to a central axis of the heating means such that the straight lines, connecting the central axis of the heating means with a groove center of the roller grooves respectively formed on each surface of the pair of pinch rollers, are parallel to a traveling direction of the base material ingot fed into the heating means.

Therefore the claimed invention is not obvious over the cited references. Therefore,

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Applicants respectfully request the Examiner to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1-20, all of the claims presently pending in the application, are patentably distinct over the alleged prior art of record and are in condition for allowance. Applicants respectfully request the Examiner to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, Applicants requests the Examiner to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The undersigned authorizes the Commissioner to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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S. S. Sahota, Esq.
Registration No. 47,051

Sean M. McGinn, Esq.
Registration No. 34,386

MCGINN INTELLECTUAL PROPERTY
LAW GROUP, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, VA 22182-3817
(703) 761-4100
Customer No. 21254